DOCUMENT RESUME

ED 462 443 TM 033 707

AUTHOR Johnson, William L.; Johnson, Annabel M.; Zimmerman, Kurt J.
TITLE Assessing School Work Culture: A Higher-Order Analysis and Strategy.
PUB DATE 2002-02-00
NOTE 23p.; Paper presented at the Annual Meeting of the Southwest Educational Research Association (25th, Austin, TX, February 14-16, 2002).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Educational Environment; Elementary Secondary Education; Factor Analysis; Factor Structure; *Principals; *Productivity; School Culture; *Teachers; *Work Environment

ABSTRACT

This paper reviews a work culture productivity model and reports the development of a work culture instrument based on the culture productivity model. Higher order principal components analysis was used to assess work culture, and a third-order factor analysis shows how the first-order factors group into higher-order factors. The school work culture model contains the dimensions of: (1) schoolwide planning; (2) professional development; (3) program development; and (4) school assessment. Within 4 subscales for these dimensions are 10 smaller logical clusters. The School Work Culture Profile (SWCP) was developed based on responses of a panel of experts, and the SWCP was administered to a total sample of 925 subjects, representing 41 school districts in Florida, with a teacher to principal ratio of approximately 4 to 1. The Statistical Analysis System principal components program was used to examine the factorial validity of SWCP scores. The second-order factor analysis generated a set of relationships the 60 items of the SWCP that are reflective of several major thrusts for organizational transformation within the quality management literature. These four factors were called Continuous Improvement, Human Resource Development, Strategic Planning and Accountability, and Collaboration. For the third-order solution, there were two higher order factors, one that could be termed Continuous Improvement and one that could be titled Planning, Collaboration, and Accountability. The third-order solution focuses on educational process variables that include management factors that sustain productive schools. The SWCP can also describe how changes in work culture are taking effect following the implementation of new strategies of reform. An appendix contains the School Work Culture Productivity Model. (Contains 4 tables and 48 references.) (SLD)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 462 443

ASSESSING SCHOOL WORK CULTURE: A HIGHER-ORDER ANALYSIS AND STRATEGY

By

William L. Johnson, Ed.D., NCC, LMFT
Department of Special Programs
Van Independent School District
985 N. Maple Street
Van, Texas 75790-0697
(903) 963-8623 (Phone)
johnsonw@van.sprnet.org (e-mail)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

W Johnson

Annabel M. Johnson, Ph.D.
235 Texas Drive
Lindale, Texas 75771
(903) 881-9392 (Phone)
wljahj@aol.com (e-mail)

Kurt J. Zimmerman
Senior Analyst
Coca-Cola Bottling Company
2054 Capstone Ct.
Rock Hill, South Carolina 29732
(803) 327-2271 (Phone)
kurtjzimm@juno.com (e-mail)

TM033707

Paper Presented at the Annual Meeting of the Southwestern Educational Research Association, Austin, Texas, February 14-16, 2002

BEST COPY AVAILABLE

ASSESSING SCHOOL WORK CULTURE: A HIGHER-ORDER ANALYSIS AND STRATEGY

Abstract--School culture has emerged as a framework for the study and interpretation of the structure and development of schools. This paper reviews a work culture productivity model and reports the development of a work culture instrument based on the culture productivity model. The use of higher-order component analysis shows areas of generalization across the primary components.

School culture has emerged as a framework for the study and interpretation of the structure and development of schools (Deal & Kennedy, 1982; Snyder & Anderson, 1986; Rossman, Corbett, & Firestone, 1988; Deal, 1987; Brandt, 1990; Greene, 1991). Culture has been defined as an understanding of "the way we do things around here" and is characterized by shared beliefs and visions, rituals and ceremonies, and networks of communication (Deal & Kennedy, 1982, p.14). Schein (1990) noted that culture can be defined as (a) a pattern of basic assumptions, (b) invented, discovered or developed by a given group, (c) as it learns to cope with its problems of external adaptation and internal integration, (d) that has worked well enough to be considered valid and, therefore (e) is to be taught to new members as the (f) correct way to perceive, think and feel in relation to those problems. Furthermore, he notes that culture manifests itself at three fundamental levels: (a) observable artifacts, (b) values, and (c) basic underlying assumptions. Researchers in organizational development have sought to observe, describe, and understand the existing cultures of schools and link the same with the productivity of an organization. Some have stated that the effect of culture on productivity is so powerful that developing a culture that supports school effectiveness is essential to school success (Deal, 1987). Thus, reform efforts in many schools and systems have focused on bringing about changes in existing school cultures (Goldman & O'Shea, 1990; Miles & Louis, 1990).

Studies of organizational culture have used both qualitative and ethnographic approaches, as well as quantitative approaches. Rooted in the concept of systems culture, the construct of school work culture is described as a subset of the same. Specifically, it refers to the collective work patterns of a system (or school) in the areas of systemwide/schoolwide planning, staff development, program development, and assessment of productivity, as perceived by its staff members (Snyder, 1988). This generalization is derived from the literature that schools can have a culture that either supports or hinders educational excellence and productivity and that positive school culture is associated with effective schools (Sweeney, 1987; Deal, 1987; Sergiovanni, 1987).

In a massive nationwide study (Chubb & Moe, 1990), the authors randomly sampled 500 schools. Some 10,000 students participated in the testing and surveys, and 12,000 teachers provided in-depth information about decision making, classroom environment, and their perceptions of the problems in their schools. In addition, the principals and administrators in all the schools were surveyed. The results of the study showed that attending an effectively organized high school is worth at least an extra year's achievement over the course of a high school career. The authors found that a clear sense of purpose, leadership, professionalism (treating teachers as professionals), and high expectations for academic work were what really seemed to matter. Overall, the schools seemed to work like a professional team. The researchers found that the most important determinant of what students gain in high school was the students' individual aptitude. But the second most powerful predictor of achievement gains in high school was effective school organization (Brandt, 1990-1991).

Based on this backdrop, the purpose of the study was to use higher-order principal components analyses to assess work culture. A third-order factor analysis will show how the first-order factors group into higher-order factors. This is important in assessing the global components of work culture.

MANAGING PRODUCTIVE SCHOOLS

For the past several years, the authors have been studying extraordinary schools to determine why they were outstanding and exceptionally productive (Johnson & Snyder, 1986; Johnson, Snyder, & Johnson, 1991, 1992-93, 1994; Snyder, Anderson, & Johnson, 1992). Specifically, we were looking for common threads that ran through exceptional schools. In the 1980's, Snyder and Anderson (Snyder & Anderson, 1986; Snyder, 1988) implemented a leadership training program known as Managing Productive Schools (MPS) in Florida, Minnesota, and Virginia. The Minnesota State Legislature adopted the MPS job dimensions (work culture) as the licensing rules for principals. In Israel, Professor Tamar Horowitz (from Ben Gurion University in the Negev) has been invited by the Israel Department of Education to design a school-wide assessment system based on the MPS job dimensions. In the late 1980s, representatives of the Government of India contacted the authors and requested that they be allowed to distribute these findings to the leading educators in India. The program is based on the research base noted above and also on a systems approach to organizational development. That is, all dimensions of the organization are viewed as interdependent features to enable the system to achieve its purposes and goals. Following is a brief review of the school work culture model.

Dimension 1: School-Wide Planning. As Rigsby (1994, p. 5) noted, "This constancy of purpose, restated and reinforced by top level management fosters a culture of cooperation, teamwork, innovation, and a commitment to continual improvement and customer satisfaction." Perkins (1994) wrote that the work of teams is the wave of the future as collaboration and a sense of community between and within all departments and levels of the organization have replaced the working mode of isolation. Grade level teams, curriculum committees, the school site council, ad hoc problem solving committees, and staff meetings contribute significantly to a professional culture in the school (Chrispeels, 1992). Peters and Austin (1985) found that the intensity of management's commitment to organizational goals is the chief difference between great and not-so-great organizations.

Dimension 2: Professional Development. Professional development plans that are linked to organizational goals have the power to enhance individual and group performance, and that of the school as well (Carneval, 1989). With little time for development, Chrispeels (1992) wrote that teachers do not have the opportunity for professional development. They may also lack self-confidence and feel their self-esteem threatened. The staff felt that barriers were being broken through schoolwide staff development programs and that staff development was critical to school improvement. Structurally, work groups become learning centers for teachers as they share, plan, and critique programs or tasks together (Larson & LaFasto, 1989).

Dimension 3: Program Development. The purpose of program development is to solve specific problems and solve learning challenges. However, the top leadership of educational institutions are those who must provide the organization with the values and guiding philosophy inherent in a quality culture (Hocevar, 1994). Interestingly, commitment to change seemed more prevalent among staff members in more effective schools than in less effective schools (Chrispeels, 1992). Teacher collaboration is evident in a successful school (Kushman, 1992).

Dimension 4: School Assessment. Accountability systems drive assessment activities in productive organizations. Goal-based assessments are the most effective in altering individual and organizational performance. All systems need feedback to remain viable, and feedback requires information about accomplishments in relation to the purposes, goals, and output of the system or organization (Chrispeels, 1992). Those closest to the work have the greatest opportunity to understand the work and know what needs to be done for improvement (Stratton, 1991).

The expansion of the literature base about organizational and human productivity indicates that administrators and teachers together must assume responsibility for students' achievement patterns to change.

Smylie and Denny (1990) noted that change must be grounded in local discretion and in decision making that involves teachers as participants. The existence of formal team structures is related directly to increases in the degree of teacher involvement in decision making (Blase, 1993). The role of the principal, for example, has changed from keeping teachers in their rooms to leading teachers in areas such as budget, personnel, curricular, and instructional considerations (Walker & Peel, 1993).

The literature on all kinds of productive organizations continues to affirm that employee involvement is essential to the very survival of an organization. Resources, information, opportunity, and support are vital materials and forms of power that fuel organizational productivity (Johnson & Snyder, 1989-1990). A typical production model might divide the school year into three parts: planning (September and October), development (November through April) and evaluation (May and June). Planning activities might include school-wide goal setting and work group and individual staff performance planning. Developmental activities might include staff development, clinical supervision, work group development, and quality control activities. Program development might include instructional program and resources development. Productivity assessment would include assessing achievement for students, teachers, work groups, and the school itself. The assessment findings would then serve to direct the feedback and feed-forward planning and development activities for the next academic year.

The work culture model was based on an in-depth study of the literature on productive organizations and work cultures in business and education; over 400 studies were reviewed (Snyder & Anderson, 1986; Snyder, 1988). Included within the four subscales are ten smaller logical clusters (dimensions): goal setting, work group performance, individual staff performance, staff development, clinical supervision, work group development, instructional program development, resources development, quality control, and assessment. The implementation of this work culture model constitutes a school production strategy. See Appendix A for an expansion of this model.

METHOD

Participants

The total sample of subjects (n=925) were from 112 Florida schools representing 41 of the 67 school districts in Florida. The ratio of teachers to principals was approximately four to one. Each subject in the sample was sent a survey instrument with directions and a machine-scorable answer sheet. The data were collected by mail.

Procedures

The initial request for what now is called the School Work Culture Profile came from superintendents in the Prince George, British Colombia, region in the early 1980s. The occasion was a workshop designed for superintendents who wanted to develop and coach their principals.

After examining the research base for the model and discussing 10 smaller dimensions of work culture, the superintendents were asked how principals might use the Managing Productive Schools (MPS) knowledge base to work with their staffs. A discussion evolved around the translation of the 100 subset skills, from the 10 competencies, into a school diagnostic instrument. Interest centered on helping principals find out what their staff perceptions were regarding the school's work patterns. They anticipated that the 100 research-based subset skills provided a defensible basis for teachers' feedback on the school's work culture. The superintendents perceived that principals could use the feedback from administering the instrument as a guide in planning for school development.

We then created an initial 100-item scale and piloted it in workshops with principals over the next year. In 1984, we field tested the revised instrument in school districts in Missouri and Maryland, and in Hillsborough, Pasco, and Sarasota Counties in Florida. In 1987, the Pasco County School District received a grant from the Florida Council on Educational Management to become one of three state pilot sites to develop Level III

Principalship Certification Programs. A Level III Program would be designed to measure the extent principals used the knowledge base and skills taught in their Level II Management Development Program to solve schooling problems over time. Because the MPS model and training program were the core of the District's Level II Program, we decided the productivity instrument might provide one measure of a potential Level III school.

We edited the instrument and reorganized it to create a measure suitable for research. We deleted introductory paragraphs explaining the concepts, edited the items for language clarity, and split several items into two items. We randomized the resulting pool of items and removed all references to the four subscale constructs. Directions were written to allow for the use of a machine scorable answer sheet.

To investigate content validity, we mailed the 62-item edition of the instrument to a panel of 17 experts in the field. Fifteen members of this nationwide panel returned an 11-page questionnaire on the language clarity and the item relevance of the items. We used a 6-point Likert-type scale for both the language clarity scale and the item relevance scale. A rating of six was awarded an item judged to be very clear (language clarity scale) or very relevant (item relevance scale). The panel members' responses were averaged, and their written comments were reviewed and summarized. Item means were calculated for the four subscales and for the total scale. In language clarity, the subscale means ranged from 5.32 to 5.64, and the total scale mean was 5.45. We deleted six items, wrote four new items, and revised the language of many items. The item relevance subscale means varied from 5.46 to 5.72, and the total scale mean equaled 5.53.

We mailed a second content validity survey containing the revised edition of the instrument to a panel of 17 reviewers. Fourteen members of this panel were on the earlier panel. Two earlier panel members who had not responded and one panel member who requested to be eliminated were dropped from the second panel. On the second panel, 11 members responded to an 18-page questionnaire. The analysis of their responses led to the current selection of the School Work Culture Profile (SWCP) items.

The SWCP was tested using two different reliability samples. Two classes of graduate students in education (n=46) took the SWCP in the fall of 1987. Alphas for the four subscales were between .88 and .93; the alpha for the total scale was .97. A second sample of fifty elementary school teachers in Lee County, Florida participated in a test-retest study with a two week delay time in the spring on 1988 A test-retest Pearson correlation coefficient of .78 was attained. The final instrument consisted of 60 items. A five point Likert-type scale ranging from strongly disagree to strongly agree, with a midpoint of undecided, was used to rate each item. The 60 items represent four subscales of 15 items each. See Table 1 for the descriptive statistics for the items.

RESULTS

We used the SAS principal components program (SAS Institute, Inc., 1986) to examine the factorial validity of SWCP scores. A relevant question pertaining to performing a principal components analysis as against principal factor analysis involves whether different factors will emerge if the researcher puts 1.00s in the main diagonal rather than communalties. The number of variables in the analysis itself affects the degree of difference between the two analyses. That is, the proportion of entries involving the diagonal of the correlation matrix becomes increasingly smaller with larger variable sets. For example, with 10 variables, 10% (10/100) of the entries involve the diagonal, but, with 60 variables, 1.6% (60/3,600) of the entries are in the diagonal. Gorsuch (1983) noted that when there was a large number of variables having moderate communalities, the differences between the analyses were negligible. Harman (1967) stated, "As saving grace, there is much evidence in the literature for all but very small sets of variables, the resulting factorial solutions are little affected by the particular choice of communalities in the principal diagonal of the correlation matrix" (p. 83) Nunnally (1978) noted, "It is very safe to say that if there are as many as 20 variables in the analysis, as there are in nearly all exploratory factor analyses, then it does not matter what one puts in the diagonal spaces" (p. 418). Diekhoff

(1992) noted that researchers seldom see substantial differences using these two different procedures. Velicer and Jackson (1990) noted that the high degree of similarity between a component analysis and a factor analysis was the basis of the major conclusion that the choice of method was unlikely to result in empirical or substantive differences. This reasoning constituted the justification for performing a principal components analysis rather than a principal factor analysis.

Determining the number of components to extract from the correlation matrix is a fundamental decision in any analysis (Thompson & Borrello, 1986). Many researchers follow the recommendations of Guttman (1954) and extract components with eigenvalues greater than one. The criterion has been shown to be quite accurate when the number of participants is greater than 250 and the mean communaltiy is greater than or equal to 0.60 (Stevens, 1986). Both conditions were met for this study. The authors applied the eigenvalue criterion in the decision on component extraction.

We performed a first-order principal components analysis (Pedhazur & Schmelkin, 1991; Stevens, 1986) first for the data. Individual questions were retained if they had a pattern/structure coefficient greater than or equal to $|0.40|$. An approximate check of whether a factor pattern coefficient is statistically significant can be obtained by doubling the standard error (i.e. doubling the critical value required for significance for an ordinary correlation). The statistically significant value for a sample size of 925 is approximately 0.18 (Stevens, 1986). The number is a minimum and may be increased. The first-order principal components analysis yielded ten factors. The prerotation eigenvalues for the components were 20.38, 2.99, 1.76, 1.59, 1.53, 1.32, 1.19, 1.11, 1.07, and 1.02. The presence of a large generalized factor was one justification for performing a promax factor rotation for the primary factor solution, as well as the number of factors in the primary solution. See Table 2 for the first-order factor loadings.

One result of the first-order principal components analysis were matrix of correlations among the factors, a nonidentity matrix obtained after rotation to the desired criterion. The interfactor correlation matrix can be factored just as the 60x60 variable matrix can be. This method is called second-order factor analysis. The decision to extract second-order factors was driven by the finding that the first-order interfactor correlation matrix had numerous noteworthy correlations, suggesting a first-order oblique solution as well as a higher-order result (Gorsuch, 1983). Very often in research, the value is set at 0.4 in absolute magnitude. Items were included if they had pattern/structure coefficients greater than or equal to 0.40 in absolute value. Salient items with factor pattern coefficients greater in absolute value than 0.40 are presented in bold in the data tables.

Researchers often want to extract higher-order solutions because the higher levels provide different structural perspectives. As Gorsuch (1983) explained, if a planet represented a higher-order factor solution, a lower solution level would divide the planet into areas of water and land. And a still lower solution would divide the water into oceans and lakes and the land into continents and islands. Higher-order factorial solutions organize data structurally similar to this topological example. The first-order solution is a close-up view that focuses on details; higher-order solutions look at a greater distance to give areas of generalization across the primary factors. These areas of generalizaton across the primary factors form the higher-order factors. Thompson (1990) noted that both perspectives are potentially useful in understanding data.

Another advantage for assessing higher-order structures is that they provide useful information if the higher order factors will be used in future research. Such information might show that the primary factors are quite narrow and that the higher-order solution would be of greater importance. In this study, the higher-order solution provided an abbreviated pool of work culture items. The higher-order items can be reviewed and factor analyzed to assess the dimensionality of the primary factor model.

In conducting a higher-order factor analysis, the interfactor correlation matrix can be factored just like the intervariable correlation matrix. In higher order research, it is common to see factors extracted from the interfactor correlation matrix, rotated to the desired criterion and interpreted directly as factors comprising

factors. This sort of interpretation is not desirable for higher-order factor analysis because the accuracy of interpretation will decrease with each level of the higher-order factor solution. The problem can be avoided if the relationship of the original variables to each level of the higher order factors is determined (Gorsuch, 1983; Thompson, 1990). Gorsuch suggested that one way to address this issue was to postmultiply the first-order factor pattern matrix by the rotated second-order factor pattern matrix. Thompson noted that because rotation was used to facilitate factor interpretation, it would be logical also to rotate the product matrices to the desired criterion. Therefore, at each level of analysis, the matrix of correlations among the components was factored and used as the matrix postmultiplier for the previous matrix. The procedure relates the original variables to each level of the higher-order factors. The product was then rotated to the desired criterion. The 60x10 promax rotated first-order factors were postmultiplied by the 10x4 varimax rotated second-order factors, and the 60x4 product matrix was then rotated to the varimax criterion. This 60x4 product matrix was the desired second-order solution. See Table 3 for the second-order factor loadings. We used the generalized Kuder-Richardson reliability formula, coefficient alpha (Cronbach, 1951; Ebel, 1965; Novick & Lewis, 1967), to evaluate the score reliability of the second-order solution. This formula was appropriate since a scale in Likert format was employed. The Cronbach alphas for the factors (subscales) follow: subscale one .92, subscale two .88, subscale three .44, subscale four .67, and the composite for all questions .94.

For the third-order solution, in the first-order factor analysis of the 60 variables, the 60x10 promax rotated first-order factors were postmultiplied by the 10x4 promax rotated factors extracted from the 10x10 interfactor correlation matrix obtained from the first-order solution. The 60x4 product matrix was rotated to the promax criterion and postmultiplied by the 4x2 varimax rotated matrix that was extracted from the 4x4 interfactor correlation matrix obtained from the 10x4 solution. The 60x2 third-order product matrix was then rotated to the varimax criterion to obtain the final third-order solution.

Higher-order solutions conclude when only one factor remains or when there are uncorrelated factors (Gorsuch, 1983). Higher-order solutions can continue indefinitely as long as a nonidentity correlation matrix is generated in the promax factor solution. The pivot power for the promax rotations was k=3. The decision at any order to perform an orthogonal rotation terminates the higher sequence (Loehlin, 1992). In this study, the third-level solution was chosen because of the large number of primary factors (Gorsuch, 1983). Had there been a small number of primary factors, only one level of higher-order analysis would have been used.

DISCUSSION

The second-order factor analysis generated a set of relationships among the 60 items on the School Work Culture Profile which are reflective of several major thrusts for organizational transformation within the quality management literature. We have given the following names to the four factors: Continuous Improvement, Human Resource Development, Strategic Planning and Accountability, and Collaboration. A greater interdependence among logical work culture dimensions has emerged, and this reinforces the systems thinking imbedded within the SWCP.

Factor one is titled *Continuous Improvement*. Within this factor exists the complex interaction among goals, work structures, planning, staff development, and student success measures. What appears to be reflected is the collaborative interdependence among and within goals, staff development, program development, and student success measures. Data bases are used to establish school goals, which then guide the development of new work structure action plans, staff development opportunities, and instruction. This tight interdependence between the school planning development and assessment is emphasized, with a clear focus on student success measures. Factor one has 14 items.

In *Factor two*, the central theme is *Human Resource Development*. Unlike staff development practices in the past, the emphasis is on the interdependence between organizational goals and outcomes, and the function

performed by training, teaching, work activity, and feedback. Goal structures in this factor are those within work units and for individual workers, which provide the context for staff development. Feedback from external and internal sources to the school generates important information to guide continuous professional improvement efforts. Factor two has 15 items.

Factor three centers around *Strategic Planning and Accountability*. Parents, staff, and students participate in developing the school's strategic plan, which is translated into work team and individual performance goals. Teams report progress regularly to the school's leadership where accountability is placed for improvement in the success patterns for all students. Within this factor are the instructional improvement items that center on learning strategies and their effects. This represents somewhat of a departure from traditional planning processes, which center more around leadership decision making and individual teacher implementation. Decision making and accountability have shifted, with this factor structure, to the work unit (team or department) where changes are expected in programs and services that correspond to the school's goals and to the changing needs of its student populations. Factor three has three items.

Factor four is named *Collaboration*. The common theme in the items within this factor is team work, both for professionals and for students. Time is a factor in success for both groups and suggests a developmental orientation to work. An assumption in this factor is that both students and staff members are given the necessary time to work together and to proceed. The emphasis on success corresponds to the fundamental shift to a customer focus within the quality work cultures. Continuous improvement within teams, rather than individuals and the school as a whole, is expected as students and professionals seek new kinds of outcomes. This factor consists of three items.

For the third-order solution, there were two higher-order factors. Factor one was composed of 16 questions. This factor picked up eight factor one items from the second-order solution (items 1, 34, 35, 41, 50, 54, 55, and 57). Factor one of the third-order solution was comprised of three distinct groupings: *performance and development goals, work group success, and instructional programs*. Factor one could be titled *Continuous Improvement*.

The goals grouping consisted of six questions (items 1, 10, 35, 50, 53, and 57). The items pertained to the identification of school improvement goals, the achievement of school development goals, and the development of individual performance goals. The work group success cluster also contained six questions (items 4, 29, 34, 41, 54, and 55). The items dealt with the broad spectrum of work group contributions, work group progress, goal achievement, plan review, idea sharing and concerns, and the assistance the school's leadership team provides for work group success. The instructional programs cluster consisted of three questions (items 16, 42, and 47). These items focused on the use of parents and community resources in the school's instructional programs and the facilitation of instructional programs on the student mastery of learning objectives.

Factor two of the third-order solution was comprised of 11 questions contained in three distinct groupings: *staff member activities, general school goals, and time allocation*. The factor could be titled *Planning, Collaboration, and Accountability*. The staff member activities grouping consisted of five questions (items 2, 8, 15, 40, and 59). The items pertained to the functioning, feedback, work patterns, and resource function of staff members.

The general school goals cluster consisted of four questions (items 3, 38, 52, and 60). These items focused on the impact of general school goals on the instructional program, the school's budget in relationship to the school's goals, the consistency of commonly held beliefs, values and norms, and the assessment of student achievement in relation to the school's strategic goals. This goal cluster was different than the goal cluster in factor one. That cluster focused on school development and performance goals. The factor two goal cluster was a general goal item cluster that pertained to the relationship of learning objectives, the school's budget, and student achievement of school goals. The time cluster contained two questions (items 24 and 33). These items pertained to the structure and provision of school time for cooperative work activity and academic success.

The third-order factor two solution picked up three items from the factor two second-order solution (items 3, 38, and 52). The same third-order solution picked up all three items from the factor four second-order solution (items 8, 15, and 59). This solution also included one item in the factor three second-order solution (item 24), and one item from the factor one second-order solution (item 2). In other words, the third-order factor one solution included the general themes of the second-order factor one solution while the third-order factor two solution included primarily the factor three and four item themes from the second-order solution.

Overall, the third-order solution picked up the themes pertaining to *performance and development goals, work group success and instructional programs*. This is identified as *Continuous Improvement*. The *staff member activities, overall school goals, and time allocation themes* are identified as *Planning, Collaboration and Accountability*. The groupings are planning and development clusters that incorporate items pertaining to school improvement and assessment, educational progress, constructive feedback, and educational assessment.

CONCLUSION

The significance of the present study lies in the current focus on school culture and its relationship to school effectiveness (cultural context). The research literature provides a basis for postulating a structure for a school productivity model. Significantly, over the past two decades there has been a stagnation in the growth of educational productivity in America. Our study addresses that stagnation focusing on the "what and how" issues involving achievement and school organization. The article proposes a solution to the fragmentation noted positing that the lack of coherence and focus is systematic in nature. This conclusion arises from two decades of administrative involvement in American and Canadian schools and studies like the one reported in this article. This study developed the linkage of student achievement with effective school organization and offered an instrument to test the assertions. As school staffs begin to consciously implement reforms to improve performance, information regarding the status of the change process is invaluable to administrators and school leaders. Tools such as the SWCP can help generate data that consider the elements of planning, development, and assessment. The higher-order component analysis helps researchers identify the higher-order components that are areas of generalization across the primary work culture components. The two third-order factors are clearly delineated as *Planning and Development Themes* that incorporate items pertaining to school improvement and educational achievement. The third-order solution focuses on educational process variables. These variables include those management factors that sustain productive schools. The SWCP can also describe how changes in work culture are taking effect following the implementation of new strategies of reform. This would involve a traditional test-retest design, administering the SWCP before school or district implementation of the model and again, at minimum, six months following program implementation. This type of work-culture research has been largely unexplored in the professional literature.

Table 1
Descriptive Statistics for the 925 Subjects

Item	M	SD
1	4.33	0.91
2	3.66	1.00
3	4.25	0.69
4	3.39	1.06
5	4.00	0.88
6	4.12	0.85
7	3.87	0.99
8	3.43	1.09
9	3.65	0.97
10	3.11	1.14
11	3.47	1.00
12	3.58	1.00
13	3.63	0.97
14	2.74	1.06
15	3.55	0.88
16	4.07	0.70
17	3.81	1.01
18	3.86	0.94
19	3.90	0.88
20	4.32	0.74
21	4.21	0.76
22	3.95	0.92
23	4.14	0.70
24	3.59	1.07
25	3.37	1.06
26	4.22	0.75
27	3.49	1.11
28	3.86	1.10
29	3.28	0.98
30	3.87	0.86
31	4.30	0.78
32	3.69	1.00
33	3.89	0.89
34	3.60	1.04
35	3.95	0.94
36	3.69	1.03
37	4.02	0.83
38	3.81	0.91

Table 1 (Continued)
Descriptive Statistics for the 925 Subjects

Item	M	SD
39	3.43	1.02
40	2.97	1.11
41	3.34	1.07
42	3.44	1.17
43	3.69	1.03
44	3.32	1.01
45	4.09	0.92
46	3.75	1.01
47	3.85	0.94
48	3.44	1.01
49	3.71	0.97
50	3.52	1.12
51	2.95	1.10
52	3.54	1.05
53	3.03	1.16
54	3.82	0.97
55	3.60	1.03
56	3.28	0.99
57	3.59	0.99
58	3.90	0.96
59	4.01	0.85
60	3.79	0.94

Table 2
First-Order Varimax Rotated Factor Pattern Matrix (n=925)

Item No.	Factors 1	2	3	4	5	6	7	8	9	10
11	**0.401**	0.172	0.072	0.393	0.156	0.144	0.137	0.183	0.369	0.003
17	**0.558**	0.205	0.088	0.144	0.126	0.235	0.135	0.132	0.095	0.174
22	**0.518**	0.265	0.206	0.028	0.120	0.267	-0.047	0.021	0.261	0.247
28	**0.480**	0.142	0.080	0.245	0.170	0.128	0.040	0.218	0.010	0.293
34	**0.638**	0.072	0.050	0.322	0.017	0.075	0.116	0.284	0.049	0.080
41	**0.565**	0.049	0.017	0.242	0.095	0.061	0.191	0.357	0.260	0.132
49	**0.490**	0.120	0.226	0.152	0.211	0.253	0.212	0.233	-0.020	0.024
54	**0.613**	0.152	0.190	0.122	0.140	0.073	0.288	0.031	0.179	0.074
55	**0.555**	0.049	0.312	0.195	0.186	0.152	0.224	0.222	0.057	0.021
58	**0.500**	0.272	0.339	0.205	0.164	0.171	0.151	-0.010	0.217	0.068
59	**0.488**	0.302	0.365	-0.016	0.157	0.113	0.199	-0.055	0.235	0.072
3	0.024	**0.511**	0.125	0.140	0.106	0.249	0.078	0.042	0.139	-0.066
16	0.105	**0.650**	0.117	0.004	0.207	0.108	0.030	0.119	0.083	0.141
20	0.136	**0.676**	0.147	0.114	-0.016	0.082	0.009	0.045	0.061	0.183
21	0.102	**0.537**	0.130	0.295	0.237	0.115	-0.070	0.198	-0.074	-0.080
23	0.171	**0.526**	0.100	0.094	0.115	0.121	0.115	0.029	0.129	0.361
26	0.156	**0.608**	0.095	0.156	0.173	0.045	0.071	0.027	0.031	0.231
27	0.293	0.146	**0.500**	0.038	0.112	0.066	0.098	0.260	0.189	0.180
32	0.193	0.162	**0.422**	0.310	0.064	0.121	0.298	0.128	0.189	0.213
36	0.095	0.263	**0.716**	0.147	0.083	0.076	0.115	0.112	0.118	-0.005
38	0.155	0.183	**0.400**	0.345	0.283	0.099	0.136	-0.052	-0.061	0.256
43	0.123	0.098	**0.702**	0.146	0.166	0.203	-0.055	0.139	0.066	0.144
46	0.130	0.159	**0.734**	0.106	0.191	0.162	-0.028	0.151	0.120	0.076
18	0.224	0.202	0.115	**0.611**	0.151	0.193	0.130	0.151	0.108	0.106
19	0.214	0.225	0.207	**0.599**	0.077	0.185	0.084	0.078	0.105	0.089
25	0.235	0.127	0.159	**0.471**	0.215	0.070	0.149	0.176	0.263	0.307
1	0.295	0.248	0.099	**0.526**	0.089	0.277	0.349	-0.056	-0.004	-0.027
4	0.236	0.089	0.104	**0.434**	-0.034	0.109	0.231	0.322	0.311	-0.024
5	0.217	0.223	0.226	**0.415**	0.194	0.268	0.144	0.131	0.063	0.066
10	0.099	0.118	0.012	0.289	**0.648**	0.201	-0.050	0.087	0.244	0.033
42	0.148	0.167	0.162	0.050	**0.734**	0.125	-0.060	0.064	0.106	0.130
47	0.166	0.227	0.184	0.018	**0.654**	0.118	0.122	0.041	0.036	0.033
52	0.020	0.095	0.340	0.304	**0.409**	0.039	0.130	0.073	-0.069	0.101
56	0.204	0.179	0.205	0.032	**0.488**	0.055	0.339	0.186	0.123	0.041
2	0.284	0.128	0.272	0.239	0.016	**0.515**	0.313	0.056	0.127	-0.078
6	0.165	0.255	0.153	0.139	0.117	**0.707**	-0.015	0.021	0.054	-0.076
7	0.004	0.267	0.162	0.151	0.151	**0.446**	0.096	0.034	0.124	0.346
9	0.197	0.079	0.178	0.088	0.123	**0.683**	0.182	0.071	0.170	0.175
13	0.169	0.101	0.031	0.178	0.171	**0.625**	-0.031	0.217	0.001	0.109

(Continued)

Table 2 (Continued)
First-Order Varimax Rotated Factor Pattern Matrix (n=925)

Item No.	Factors 1	2	3	4	5	6	7	8	9	10
50	0.284	0.060	0.066	0.166	0.006	0.091	**0.693**	0.102	0.118	0.145
53	0.344	-0.008	-0.022	0.157	0.037	0.010	**0.542**	0.288	0.228	0.001
57	0.273	0.074	0.096	0.240	0.069	0.117	**0.685**	0.166	0.022	0.172
29	0.330	0.068	0.063	0.365	0.014	0.006	0.163	**0.457**	0.256	0.143
39	0.119	0.124	0.245	0.148	0.067	0.110	0.360	**0.526**	0.009	0.187
44	0.259	0.083	0.229	0.128	0.105	0.161	0.099	**0.650**	0.124	0.083
48	0.257	0.190	0.298	0.078	0.127	0.168	0.151	**0.612**	-0.038	0.100
14	0.054	-0.048	0.100	0.329	0.223	0.120	0.205	0.111	**0.558**	0.120
15	0.175	0.399	0.244	0.109	0.035	0.065	0.078	0.114	**0.479**	-0.071
40	0.357	0.026	0.317	-0.037	0.140	0.083	0.199	0.270	**0.414**	0.156
24	0.333	0.159	0.294	0.084	0.107	0.120	0.049	0.058	0.058	**0.510**
30	0.211	0.338	0.083	0.062	0.112	0.132	0.185	0.104	0.224	**0.447**
33	0.048	0.342	0.087	0.122	0.051	-0.011	0.074	0.122	0.004	**0.447**

Note - Salient items were items with pattern coefficients greater in absolute value than 0.40.

Table 3
Second-Order Rotated Pattern/Structure Coefficients for Salient Items

Item	Question	Factors			
		1	2	3	4
1	The school administration and the staff identify goals to improve the school each year.	**0.720**	0.330	-0.042	0.080
2	The staff development program builds the school's capacity to solve problems.	**0.513**	0.242	-0.031	0.375
17	Staff members have opportunities to develop skills for working successfully in a group/team.	**0.400**	0.115	0.134	0.173
18	School evaluation is based on school goals.	**0.409**	0.265	-0.114	-0.167
19	Tasks are identified for accomplishing school development goals.	**0.421**	0.308	-0.035	-0.084
34	Work groups report periodically on progress to the school leadership team.	**0.558**	-0.035	-0.138	-0.007
35	School-wide task forces and committees work to achieve school development goals.	**0.663**	0.231	-0.051	0.019
41	Work group plans are reviewed by the leadership team.	**0.400**	-0.186	-0.300	0.089
49	Work group leaders have opportunities to develop specific leadership skills.	**0.485**	0.255	-0.006	0.103
50	All staff members develop individual performance goals to contribute to school development goals.	**0.637**	-0.344	-0.040	0.085
54	Staff member's share their ideas and concerns for improving work productivity in their work group.	**0.544**	0.001	0.120	0.304
55	The school's leadership team helps work groups to succeed.	**0.544**	0.148	-0.007	0.124
57	Individual performance goals for staff members are linked to the school's development goals.	**0.678**	-0.221	-0.044	-0.052
58	Staff members problem solve, plan, and make decisions together in productive ways.	**0.425**	0.260	0.198	0.348
3	Instructional programs are guided by learning objectives.	0.068	**0.442**	-0.038	0.274
6	Staff development programs provide opportunities to learn new knowledge.	0.153	**0.599**	0.062	0.382
10	Parents participate in identifying school goals.	-0.135	**0.471**	-0.055	-0.110
16	Instructional programs facilitate student mastery of learning objectives.	-0.057	**0.440**	0.149	0.150
21	School evaluation includes assessment of student achievement data.	0.140	**0.684**	-0.134	-0.049
26	Students are provided with reinforcement, correctives, and feedback on their performance.	0.108	**0.400**	0.239	0.032
36	Supervision helps teachers to solve instructional problems.	0.233	**0.400**	0.158	0.215
37	Resources are used to meet school goals.	0.278	**0.601**	0.308	-0.017

(continued)

Table 3 (continued)
Second-Order Rotated Pattern/Structure Coefficients for Salient Items

Item	Question	Factors			
		1	2	3	4
38	Commonly held beliefs, values and norms are consistent with school development goals.	0.339	**0.434**	0.376	-0.159
42	Parents serve as a resource to the school's instructional program.	-0.179	**0.575**	0.212	-0.098
43	Supervision builds and maintains professional self-esteem.	0.089	**0.435**	0.306	0.064
52	The school's budget reflects prioritized school goals.	0.204	**0.453**	0.124	-0.266
4	Work groups (committees, department teams, grade level groups, etc.) are assessed on their contribution to the achievement of a school's goals.	0.338	-0.155	**-0.400**	0.024
24	School time is structured to provide for cooperative work activity.	0.131	0.047	**0.538**	-0.057
51	Student achievement data are used to assess each teacher's performance.	0.108	-0.222	**-0.515**	-0.049
8	Staff members provide constructive feedback to each other regularly.	0.046	-0.171	0.170	**0.513**
15	Individual staff members alter their work patterns in response to feedback.	0.002	0.066	-0.126	**0.449**
59	Staff members function as a resource to each other.	0.343	0.184	0.293	**0.482**
31	Professional staff members participate on school-wide task forces and/or committees.	**0.533**	**0.453**	0.148	0.114
53	Each staff member's performance goals are reviewed with the school leadership team.	**0.489**	**-0.421**	-0.336	**0.731**
5	Data about student achievement, school services and programs are analyzed by the professional staff to aid in identifying school development goals.	0.361	0.373	-0.011	-0.022
7	The readiness level of students is considered when selecting/developing instructional programs.	-0.036	0.265	0.328	0.037
9	Staff development programs provide opportunities to practice newly learned skills.	0.148	0.212	0.197	0.289
11	Work groups monitor and revise their work through periodic assessment of the progress made toward goals.	0.301	0.028	-0.216	0.155
12	Instructional programs are planned cooperatively by the professional staff.	0.144	0.087	0.051	0.173
13	Staff development programs are designed to facilitate adult learning.	0.062	0.389	0.010	0.031
14	Students have input into school development goals.	-0.035	-0.230	-0.146	0.054

(continued)

Table 3 (continued)
Second-Order Rotated Pattern/Structure Coefficients for Salient Items

Item	Question	Factors			
		1	2	3	4
20	Classroom organization and activities facilitate student Learning.	0.080	0.364	0.209	0.173
22	Staff members have opportunities to learn by working cooperatively with colleagues.	0.117	0.159	0.349	0.362
23	Teachers identify learning expectations for students.	0.049	0.195	0.339	0.080
25	School evaluation is a cooperatively planned system.	0.210	0.004	0.045	-0.198
27	Staff members are supervised and/or coached regularly.	0.131	0.072	0.159	0.126
28	Professional staff members are assigned to work in teams.	0.303	0.112	0.144	-0.134
29	Work groups are assessed on the extent to which work group goals are achieved.	0.249	-0.253	-0.324	-0.158
30	Students engage in cooperative learning activities.	0.015	-0.069	0.320	0.036
32	Supervision of teaching is based on cooperatively identified goals and emerging needs.	0.360	0.041	0.137	0.035
33	Students are provided with sufficient time to succeed in learning tasks.	-0.014	0.037	0.308	-0.226
39	Individual staff members are assessed on the degree to which individual performance goals are achieved.	0.252	-0.091	-0.186	-0.226
40	Staff members observe and coach each other.	0.058	-0.236	0.026	0.254
44	Individual staff members are assessed on their contribution to work group goals.	0.084	-0.024	-0.329	-0.133
48	Individual staff members are assessed on their contribution to overall school goals.	0.185	0.144	-0.206	-0.144
56	Periodic feedback from sources outside the school is used to modify work practices.	0.182	0.219	-0.009	0.021
60	Student achievement is assessed in relation to overall school goals.	0.289	0.298	0.097	-0.245

Note. Salient items had pattern/structure coefficients greater in absolute value than |0.40|; they appear in boldface type. The instrument items are from School Work Culture Profile by K.J. Snyder, 1988, Tampa, FL: School Management Institute. Copyright 1988 by K.J. Snyder. Reprinted with permission.

Table 4

Third-Order Rotated Pattern/Structure Coefficients for Salient Items

Item	Question	Factors 1	2
57	Individual performance goals for staff members are linked to the school's development goals.	**0.943**	-0.221
50	All staff members develop individual performance goals to contribute to school development goals.	**0.938**	-0.011
53	Each staff member's performance goals are reviewed with the school leadership team.	**0.880**	0.173
34	Work groups report periodically on progress to the school leadership team.	**0.654**	-0.054
25	School evaluation is a cooperatively planned system.	**0.649**	-0.147
42	Parents serve as a resource to the school's instructional program.	**-0.642**	-0.198
29	Work groups are assessed on the extent to which work group goals are achieved.	**0.583**	-0.125
41	Work group plans are reviewed by the leadership team.	**0.572**	0.216
4	Work groups (committees, department teams, grade level groups, etc.) are assessed on their contribution to the achievement of a school's goals.	**0.530**	0.186
35	School-wide task forces and committees work to achieve school development goals.	**0.530**	-0.068
10	Parents participate in identifying school goals.	**-0.525**	-0.281
16	Instructional programs facilitate student mastery of learning objectives.	**-0.501**	0.126
1	The school administration and the staff identify goals to improve the school each year.	**0.484**	0.013
54	Staff members share their ideas and concerns for improving work productivity in their work group.	**0.442**	0.277
47	Community resources are used in the school's instructional programs.	**-0.429**	-0.014
55	The school's leadership team helps work groups to succeed.	**0.417**	0.085
15	Individual staff members alter their work patterns in response to feedback.	-0.232	**0.771**
8	Staff members provide constructive feedback to each other regularly.	0.191	**0.680**
33	Students are provided with sufficient time to succeed in learning tasks.	0.015	**-0.526**
38	Commonly held beliefs, values and norms are consistent with school development goals.	0.041	**-0.512**
2	The staff development program builds the school's capacity to solve problems.	0.200	**0.500**
52	The school's budget reflects prioritized school goals.	-0.044	**-0.497**
60	Student achievement is assessed in relation to overall school goals.	0.168	**-0.479**
59	Staff members function as a resource to each other.	0.195	**0.467**
3	Instructional programs are guided by learning objectives.	-0.398	**0.462**
24	School time is structured to provide for cooperative work activity.	0.064	**-0.435**
40	Staff members observe and coach each other.	0.160	**0.424**
6	Staff development programs provide opportunities to learn new knowledge.	**-0.493**	**0.562**

(continued)

BEST COPY AVAILABLE

Item	Question	Factors 1	2
5	Data about student achievement, school services and programs are analyzed by the professional staff to aid in identifying school development goals.	0.008	-0.167
7	The readiness level of students is considered when selecting/developing instructional programs.	0.316	-0.007
9	Staff development programs provide opportunities to practice newly learned skills.	-0.160	0.309
11	Work groups monitor and revise their work through periodic assessment of the progress made toward goals.	0.263	0.303
12	Instructional programs are planned cooperatively by the professional staff.	0.004	0.211
13	Staff development programs are designed to facilitate adult learning.	-0.265	0.038
14	Students have input into school development goals.	0.141	0.163
17	Staff members have opportunities to develop skills for working successfully in a group/team.	0.238	0.109
18	School evaluation is based on school goals.	0.316	-0.261
19	Tasks are identified for accomplishing school development goals.	0.249	-0.180
20	Classroom organization and activities facilitate student learning.	-0.307	0.152
21	School evaluation includes assessment of student achievement data.	-0.363	0.002
22	Staff members have opportunities to learn by working cooperatively with colleagues.	0.176	0.355
23	Teachers identify learning expectations for students.	-0.183	-0.074
26	Students are provided with reinforcement, correctives, and feedback on their performance.	-0.243	-0.087
27	Staff members are supervised and/or coached regularly.	0.009	0.075
28	Professional staff members are assigned to work in teams.	0.279	-0.352
30	Students engage in cooperative learning activities.	0.019	-0.144
31	Professional staff members participate on school-wide task forces and/or committees.	0.145	0.001
32	Supervision of teaching is based on cooperatively identified goals and emerging needs.	0.327	-0.104
36	Supervision helps teachers to solve instructional problems.	-0.175	0.214
37	Resources are used to meet school goals.	-0.213	-0.228
39	Individual staff members are assessed on the degree to which individual performance goals are achieved.	0.187	-0.050
43	Supervision builds and maintains professional self-esteem.	-0.319	-0.072
44	Individual staff members are assessed on their contribution to work group goals.	0.208	-0.029
45	High performance expectations exist for each role group (for example: teachers, counselors).	-0.197	0.209
46	Supervision reinforces strengths in current job performance.	-0.350	0.091
48	Individual staff members are assessed on their contribution to overall school goals.	0.171	-0.131
49	Work group leaders have opportunities to develop specific leadership skills.	0.275	0.074

(continued)

BEST COPY AVAILABLE

Item	Question	Factors 1	2
51	Student achievement data are used to assess each teacher's performance.	0.381	0.190
56	Periodic feedback from sources outside the school is used to modify work practices.	0.012	0.014
58	Staff members problem solve, plan, and make decisions together in productive ways.	0.076	0.344

Note. Salient items had pattern/structure coefficients greater in absolute value than |0.40|; they appear in boldface type. The instrument items are from *School Work Culture Profile* by K.J. Snyder, 1988, Tampa, FL: School Management Institute. Copyright 1988 by K.J. Snyder. Reprinted with permission.

Appendix A
School Work Culture Productivity Model

SCHOOLWIDE PLANNING

1. Goal Setting: Establish annual school development goals through administrative assessment and selection and also through total staff collaborative decision making.
2. Work Group Performance: Designate school work groups, both teaching teams or department and task force, to which are assigned school goal objectives and action planning responsibilities.
3. Individual Staff Performance: Establish and operationalize a teacher performance system that includes performance standards, individual goal setting and action planning procedures, performance, monitoring, due process procedures, and evaluation.

STAFF DEVELOPMENT

4. Staff Development: Develop and operationalize a school program for staff growth that emphasizes new knowledge and skills that are necessary for successful attainment of school development goals (school, work, individual).
5. Clinical Supervision: Develop and operationalize a peer and supervisory clinical supervision program for all teachers and teams, where performance feedback and correctives are provided weekly.
6. Work Group Development: Establish a healthy work climate and develop work group skills in action planning, creative and productive group communications, problem solving, and decision making. (The competency area resulted from our research analysis).

PROGRAM DEVELOPMENT

7. Instructional Program: Establish and operationalize an instructional program that reflects up-to-date research on teaching and learning, and guides the teaching improvement efforts in the following areas: curriculum implementation, student diagnosis and placement, program planning, classroom management, teaching, and learning.
8. Resources Development: Facilitate staff productivity in work groups and provide necessary resources for making the school an increasingly productive unit

PRODUCTIVITY ASSESSMENT

9. Quality Control: Establish and operationalize a quality control system for work groups and individuals which includes goal-based observations, conferencing, periodic progress reports and plans, and conferencing and supervisory plans.
10. Assessment: Establish and operationalize a set of school evaluation procedures to assess student achievement gains, teaching team and task force productivity, individual teacher performance, and total school productivity.

REFERENCES

Blase, J. (1993). The micropolitics of effective school-based leadership: Teacher's perspectives. Education Administration Quarterly, 29(2), 142-163.

Brandt, R.S. (1990). Changing schools--but how? Educational Leadership, 47(8), 3.

Brandt, R.S. (1990-1991). On local autonomy and school effectiveness: A conversation with John Chubb. Educational Leadership, 48(4):57-60.

Carneval, A.P. (1989). The learning enterprise. Training and Development Journal, 43(2), 26-33.

Chrispeels, J.H. (1992). Purposeful restructuring: Creating a culture for learning and achievement in elementary schools. Washington, DC: The Falmer Press

Chubb, J., & Moe, T. (1990). Politics, markets and America's schools. Washington, DC: Brookings Institute.

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16, 297-334.

Deal, T.E. (1987). The culture of schools. In L.T. Sheive & M.B. Schoenheit. Leadership: examining the elusive. (pp. 3-15). Alexandria, VA: Association for Supervision and Curriculum Development.

Deal, T.E., & Kennady, A.A. (1982). Culture and school performance. Educational Leadership, 40(5), 14-15.

Diekhoff, G. (1992). Statistics for the social and behavioral sciences: Univariate, bivariate, multivariate. Dubuque, IA: Wm. C. Brown.

Ebel, R.L. (1965). Measuring educational achievement. Englewood Cliffs, NJ: Prentice-Hall.

Goldman, C., & O'Shea, C. (1990). A culture for change. Educational Leadership, 47(8), 41-43.

Gorsuch, R. L. (1983). Factor analysis(2nd ed.). Hillsdale, NJ: Erlbaum.

Greene, L.E. (1991). Call it culture. Principal, 70(4), 4.

Guttman, L. (1954). Some necessary conditions for common factor analysis. Psychometrika, 19, 149-161.

Harman, H. (1967). Modern factor analysis (2nd ed.). Hillsdale, NJ: Erlbaum.

Hocevar, A.M. (1994). Quality standards: A guide to organizational transformation. Wingspan, 10(1), 6-11

Johnson, W.L., & Snyder, K.J. (1986). Instructional Leadership Effectiveness: A Research Analysis and Strategy. Educational and Psychological Research, 1, 27-47.

Johnson, W.L., & Snyder, K.J. (1989-1990). Planning for faculty development in America's colleges. National FORUM of Applied Educational Research Journal, 2(1), 34-38.

Johnson, W.L., Snyder, K.J., & Johnson, A.B. (1991). Instructional Leadership for Productive Schools. Teacher Education and Practice, 1, 51-58.

Johnson, W.L., Snyder, K.J., & Johnson, A.B. (1992-93). Developing Instruments for Educational Administration. National FORUM of Applied Educational Research Journal, 1, 3-11.

Johnson, W.L., Snyder, K.J., & Johnson, A.B. (1994). Leadership for Productive Schools. Research in the Schools, 1, 29-35.

Kushman, J. (1992). The organizational dynamics of teacher workplace commitment: A study of urban elementary and middle schools. Education Administration Quarterly, 28(1), 5-42.

Larson, C.E. & LaFasto, F.M.J. (1989). Teamwork: What must go right/what can go wrong. Newbury Park, CA: Sage Publications.

Loehlin, J.C. (1992). Latent variable models (2nd ed.). Hillsdale, NJ: Erlbaum.

Miles, M.B., & Louis, K.S. (1990). Mustering the will and skill for change. Educational Leadership, 47(8), 57-61.

Novick, M.R., & Lewis, C. (1967) Coefficient alpha and reliability of composite measures. Psychometrika, 32, 1-13.

Nunnally, J. (1978). Psychometric theory. New York: McGraw-Hill.

Odiorne, G.S. (1979). MBO II: A system of managerial leadership in the 80's. Belmont, CA: Fearon Pitmann Publishing, Inc.

Pedhazur, E.J., & Schmelkin, L.P. (1991) Measurement, design, and analysis: An integrated approach. Hillsdale, NJ: Erlbaum.

Perkins, G. (1994). Workteams: The basic units of transformation. Wingspan, 10(1), 11-12.

Peters, T.J., & Austin, N.A. (1985). A passion for excellence: The leadership difference. New York: Random House.

Rigsby, K.L. (1994). Total quality management: A philosophy for the transformation of work cultures. Wingspan, 10(1), 4-5.

Rossman, G.B., Corbett, H.D., & Firestone, W.A. (1988). Change and effectiveness in schools: A culture perspective. Albany: State University of New York Press.

SAS Institute, Inc. (1986). SAS user's guide: statistics, statistical analysis system. Cary, NC: Author.

Schein, E.H. (1990). Organizational Culture. American Psychologist, 45(2), 109-119.

Sergiovanni, T.J. (1987). The principalship, a reflective practice perspective. Boston: Allyn & Bacon.

Smylie, M., & Denny, J. (1990). Teacher leadership: Tension and ambiguities in organizational Perspective. Educational Administration Quarterly, 26,(3), 235-259.

Snyder, K.J. (1988). School Work Culture Profile. Tampa, FL: School Management Institute.

Snyder, K.J., & Anderson, R.H. (1986). Managing productive schools: Towards an ecology. Orlando: Academic Press College Division, Harcourt, Brace, Jovanovich, Inc.

Snyder, K.J, Anderson, R.H., & Johnson, W.L. (1992). " A Tool Kit for Managing Productive Schools." Educational Leadership, 49, 76-80.

Stevens, J. (1986). Applied multivariate statistics for the social sciences (2nd ed.). Hillsdale, NJ: Erlbaum.

Stratton, A.D. (1991). An approach to quality improvement that works. Milwaukee: ASQC Quality Press.

Sweeney, J. (1987). Developing a strong culture. National FORUM of Educational Administration and Supervision Journal, 3(3), 134-143.

Thompson, B. (1990). SECONDOR: A program that computes a second-order principal-components analysis and various interpretation aids. Educational and Psychological Measurement, 50, 575-580.

Thompson, B., & Borrello, G.M. (1986). Second-order factor structure of the MBTI: a construct validity assessment. Measurement and Evaluation in Counseling and Development, 18, 148-153.

Velicer, W. F., & Jackson, D. N. (1990). Component analysis versus common factor analysis: Some issues in selecting an appropriate procedure. Multivariate Behavioral Research, 25 (1), 1-28.

Walker, B.L., & Peel, H.A. (1993). Teachers and administrators: Who's who. Education, 114(2), 230-232.